Prediction of 2024 US election ...*

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November 3, 2024

We forecast the winner of the 2024 US presidential election using "poll-of-polls" by building a linear model.

1 Introduction

Election result forecasting has become an essential tool for analysts in political science and the public to predict the outcome of democratic process, such as the presidential election in the United States. Traditionally, individual polls have been used as a snapshot of voter sentiment, but they only reflect temporary changes in the performance of contestants, instead of a precise estimation of the election result. As discussed by Pasek (2015) and Blumenthal (2014), the aggregation of multiple polls, or "poll-of-polls," has become a popular technique to reduce individual survey errors and provide more accurate election forecasts. However, the traditional poll aggregation does not reflect dynamics of an election, especially with real-time changes and the introduction of new data. This creates a gap for a more adaptable model to predict the election result based on both polling data and additional variables, such as historical data and economic indicators.

This paper fills the gap by building a hybrid election forecasting model following the strategies mentioned by Pasek (2015). As Pasek (2015) described in their article, aggregation involves determining which surveys are worth including, as well as selecting, combining and averaging results from multiple polls to reduce individual biases and errors. Prediction modeling adds other data to the model that predicts election outcomes based on current dynamics. Hybrid models like the Bayesian approach incorporates prior beliefs based on historical data or expert knowledge and new evidence like economic updates to dynamically adjust the forecast as the campaign progresses.

In this paper, we aim to predict the 2024 us election result with the hybrid election forcasting model. We incorporate aggregation by filtering the polls on FiveThirtyEight (2024) by

*Code and data are available at: https://github.com/yulexun/uselection.

numeric grade that indicates pollster's reliability, prediction that incorporates social and economic indicators including unemployment rates and abortion rates, and hybrid approaches that leverages Bayesian techniques which combines historical data such as the 2016 election data, allowing for a dynamic prediction of the U.S. presidential election.

The estimand for this research paper is the predicted support percentages for Kamala Harris and Donald Trump. The prediction is based on quantifying various polling factors, including sample size, poll scores, and transparency scores, which are used as predictors.

The results of this model indicate a more stable and accurate forecast compared to traditional aggregation methods alone, [update this …]

The remainder of this paper is structured as follows: [update this …]

Appendix

2 Additional data details

3 Model details

3.1 Posterior predictive check

In **?@fig-ppcheckandposteriorvsprior-1** we implement a posterior predictive check. This shows…

In **?@fig-ppcheckandposteriorvsprior-2** we compare the posterior with the prior. This shows…

3.2 Diagnostics

?@fig-stanareyouokay-1 is a trace plot. It shows… This suggests…

?@fig-stanareyouokay-2 is a Rhat plot. It shows… This suggests…

4 FiveThirtyEight Licenses

5 Our Prediction

```
# A tibble: 16 x 4
   state          harris_predicted_pct trump_predicted_pct winner
   <chr>                         <dbl>                <dbl> <chr>
 1 Arizona                        46.6                 49.2 Trump
 2 Florida                        42.9                 50.8 Trump
 3 Georgia                        47.2                 48.9 Trump
 4 Iowa                           48.6                 43.6 Harris
 5 Maine CD-2                     47.4                 49.3 Trump
 6 Michigan                       47.6                 47.0 Harris
 7 Minnesota                      48.6                 43.7 Harris
 8 Nebraska CD-2                  49.9                 42.2 Harris
 9 Nevada                         49.4                 47.1 Harris
10 New Hampshire                  50.8                 42.6 Harris
11 North Carolina                 48.7                 47.7 Harris
12 Ohio                           44.0                 51.0 Trump
13 Pennsylvania                   48.2                 47.2 Harris
14 Texas                          45.0                 50.2 Trump
15 Virginia                       49.2                 43.2 Harris
16 Wisconsin                      48.4                 46.4 Harris
```

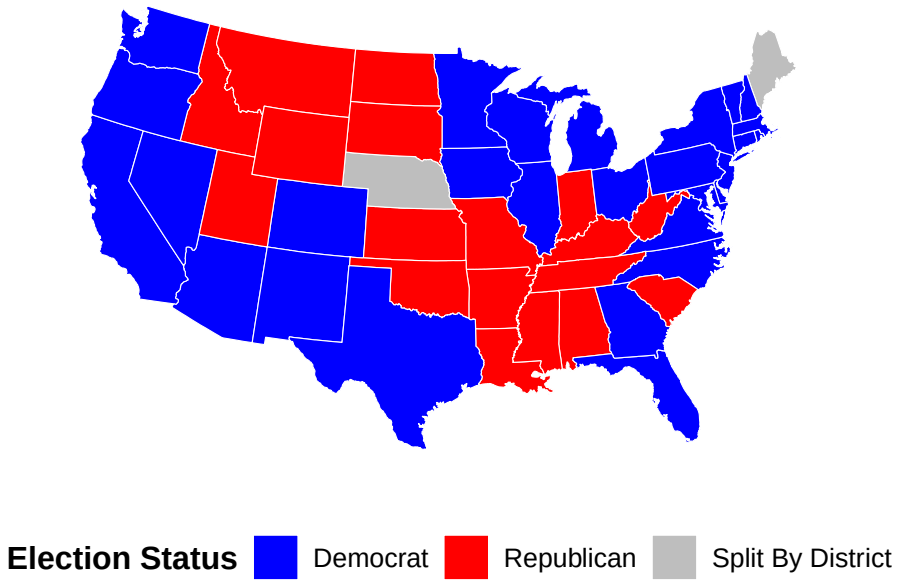

Figure 1: 2024 U.S. Presidential Election State Forecast Map

References

Blumenthal, Mark. 2014. "Polls, Forecasts, and Aggregators." *PS: Political Science and Politics* 47 (2): 297–300. http://www.jstor.org/stable/43284537.

FiveThirtyEight. 2024. "Our Data." *FiveThirtyEight*. https://data.fivethirtyeight.com.

Pasek, Josh. 2015. "THE POLLS–REVIEW: PREDICTING ELECTIONS: CONSIDERING TOOLS TO POOL THE POLLS." *The Public Opinion Quarterly* 79 (2): 594–619. http://www.jstor.org/stable/24546379.